

---

## Procedure for the Use of an Alternate Light Source

**1.0 Purpose** - This procedure specifies the methods for using an alternate light source in forensic casework to observe body fluids.

**2.0 Scope** - This procedure applies to those Forensic Scientists who have been released to use an alternate light source in forensic casework.

**3.0 Definitions** – Alternate Light source (ALS) – an instrument that uses wavelengths of light that are not visible to the naked eye to enhance potential stains on evidence.

### 4.0 Equipment, Materials and Reagents

- Crime-Lite 82S, Blue 420nm-470 nm, Blue-green 445 nm-510 nm and Crime-Lite 82S IR or equivalent light
- Surface Pro Tablet or equivalent (for the Crime-Lite IR)
- Goggles (Orange OG 550 AG or Yellow GG 495 AG or equivalent)
- Permanent marker

### 5.0 Procedure

**5.1** The evidence shall be viewed with the ALS under normal lighting.

**5.1.1** The blue and blue-green ALS lights may be used to examine articles with potential biological stains (e.g., semen and /or saliva).

**5.1.2** The Infrared (IR) light may be used to visualize dark and/or patterned clothes for potential bloodstains.

### 5.2 Visualizing Stains with Blue and Blue Green Lights

**5.2.1** Put on the applicable goggles for visualizing stains using the blue and blue green ALS lights.

**5.2.1.1** The yellow goggles shall be used with the blue light (420nm – 470 nm).

**5.2.1.2** The orange goggles shall be used with the blue-green light (445nm – 510nm).

**5.2.2** Power on the ALS.

**5.2.3** Scan the evidence using the ALS. The optimal light can depend on the surface material and the stain itself. The blue and blue-green lights can be interchanged to best visualize the stain.

**5.2.4** Mark the areas that fluoresce with a permanent marker according to the Forensic Biology Section Procedure for Semen and Sperm Analysis.

**5.2.5** When the analysis is complete, turn off the light and remove goggles. Clean the goggles by wiping with alcohol.

---

### 5.3 Visualizing Stains with (IR) Light

- 5.3.1 The tablet computer will be needed to visualize stains using the IR light.
- 5.3.2 Power on the ALS.
- 5.3.3 Turn on the tablet and open the software for use with the IR light
- 5.3.4 Scan the evidence using the ALS. The optimal light can depend on the surface material and the stain itself.
- 5.3.5 Mark the areas that absorb light with a permanent marker.
- 5.3.6 When the analysis is complete, turn off the light and tablet after closing the software.

### 5.4 Reporting Guidelines

- 5.4.1 Reporting of ALS results in cases where samples are taken for additional analysis (e.g., swabbing underwear in Sexual Assault evidence kits) is not required. ALS is used as a visual screening tool to aid the analyst in analysis of an item. ALS results will be reported for samples where no further testing is being performed on the item(s) due to the ALS results obtained.

- 5.4.2 This phrase shall be used when only a visual examination is performed for semen and/or saliva, no stains of interest are observed, and no chemical analysis is performed.

A visual examination (with an alternate light source, if used) of \_\_\_\_\_ (Item(s) \_\_\_\_\_) failed to reveal the presence of semen like and/or saliva like stains.

- 5.4.3 This phrase shall be used when a visual examination is performed using an ALS for semen, no stains of interest are observed, and chemical analysis is performed.

A visual examination with an alternate light source of \_\_\_\_\_ (Item(s) \_\_\_\_\_) failed to reveal the presence of semen like stains; however, sample(s) were taken for further analysis.

- 5.4.4 This phrase shall be used when only a visual examination is performed for semen and stains of interest are observed; however, no further chemical analysis is performed.

A visual examination (with an alternate light source, if used) of \_\_\_\_\_ (Item(s) \_\_\_\_\_) revealed areas of interest; however, no further chemical analysis was performed.

- 5.4.5 This phrase will be used when a visual examination with the alternate light source causes the entire item to fluoresce due to interference from the substrate.

A visual examination with an alternate light source of \_\_\_\_\_ (Item(s) \_\_\_\_\_) was performed. Due to possible interference of the substrate, no interpretable results were obtained.

- 5.5 **Standards and Controls** – Prior to using an alternate light source a quality control check shall be performed and the results recorded.

**5.5.1** Blue and Blue-green lights – The ALS shall be checked using both a swatch of cloth with a known semen stain and a swatch of cloth with no stain to verify fluorescence.

**5.5.2** IR light – The ALS shall be checked on a both a swatch of dark cloth (black or similar) with a known blood stain and a swatch of dark cloth with no blood stain to verify absorption.

**5.6 Calibration** – N/A

**5.7 Maintenance** – N/A

**5.8 Sampling** – No sampling is performed using this procedure. Areas that were marked with a permanent marker during the examination may be further evaluated by additional body fluid testing.

**5.9 Calculations** - NA

**5.10 Uncertainty of Measurement** – N/A

**6.0 Limitations** – Many items/ substances other than body fluids will fluoresce/absorb light using the ALS.

## **7.0 Safety**

**7.1** Protective goggles shall be worn when operating the ALS with the blue and blue green lights. This also applies to any other individual who may be in the same room or area. This is particularly important when examining reflective surfaces as the light source may be reflected and result in eye damage.

**7.2** Never look directly into any light source as this will cause eye damage.

**7.3** Assume that all body fluids contain bloodborne pathogens and handle accordingly.

**7.4** If the examination involves a biohazard, wear proper personal protective equipment such as eye protection, lab coat, and/or gloves.

## **8.0 References**

Crime-Lite 82S manual

**9.0 Records** – N/A

**10.0 Attachments** - N/A

<b>Revision History</b>		
Effective Date	Version Number	Reason
05/24/2024	5	5.4.2 – clarified wording